

**Work Order ID 80850**

March-01-12 1:50:14 PM

**\*80850\***

Page 1

Item ID: D412-664-203TRN

Accept

**\*N900040100\***

Setup

Start

**\*NS1\***

Revision ID:

Item Name: Crosstube Turning Detail

Stop

**\*NS2\***Start Date: 01/03/2012 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 15/03/2012 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: MLJDate: 12/03/12 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run

Start

**\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D412-664-243	Rev E(DEO)

100 0.00

**\*100\*** MORI SEIKI CNC LATHE LARGEMori Seiki Memo 0.00 1 8 \_\_\_\_\_

Mori Seiki CNC Lathe Large 1-Fill tube with sand &amp; install plugs DT8534 on both ends as per Folio FA166

2-Turn first side as per Folio FA166

3- File transition lines smooth.

FOLIO REV: ADWG REV: EMORI L 12/03/23

110 QC1- Inspect dimensions to dimension sheet 0.00

QC Memo 0.00 1 8 \_\_\_\_\_

Quality Control

MORI L 12/03/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**Work Order ID 80850**

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**\*80850\***

Page 2

**Item ID:** D412-664-203TRN

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**\*N900040100\***

Setup Start

**\*NS1\***

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**Item Name:** Crosstube Turning Detail

Stop

**\*NS2\***

**Start Date:** 01/03/2012 **Start Qty:** 1.00 **\*1\***

**Cust Item ID:**

**Required Date:** 15/03/2012 **Req'd Qty:** 1.00 **\*1\***

**Customer:**

**Reference:**

<b>Approvals:</b>	<b>Process Plan:</b> _____	<b>Date:</b> _____	<b>Tooling:</b> _____	<b>Date:</b> _____	<b>Run</b>	<b>Start</b>	<b>*NR1*</b>
	<b>QC:</b> _____	<b>Date:</b> _____	<b>SPC (Y/N):</b> _____	<b>Date:</b> _____	<b>Stop</b>		<b>*NR2*</b>

<b>Sequence ID/ Work Center ID</b>	<b>Operation Description</b>	<b>Set Up/ Run Hours</b>	<b>Tool ID</b>	<b>Tool #</b>	<b>Plan Code</b>	<b>Accept Qty</b>	<b>Reject Qty</b>	<b>Reject Number</b>	<b>Insp. Stamp</b>
120 <b>*120*</b> Mori Seiki	MORI SEIKI CNC LATHE LARGE  <b>Memo</b> 1-Turn second side as per Folio FA166 2- File transition lines smooth. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus FOLIO REV: <u>A</u> DWG REV: <u>E</u>	0.00  0.00				1	0		
130 <b>*130*</b> QC Quality Control	QC1- Inspect dimensions to dimension sheet  <b>Memo</b>	0.00  0.00				1	0		
140 <b>*140*</b> QC Quality Control	QC8- Inspect parts - second check  <b>Memo</b>	0.00  0.00				DP	12-326		

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**Work Order ID 80850**

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**Item ID:** D412-664-203TRN

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Setup Start

**\*NS1\***

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Stop

**\*NS2\***

**Start Date:** 01/03/2012 **Start Qty:** 1.00 **\*1\***

**Cust Item ID:**

**Required Date:** 15/03/2012 **Req'd Qty:** 1.00 **\*1\***

**Customer:**

**Reference:**

<b>Approvals:</b>	<b>Process Plan:</b> _____	<b>Date:</b> _____	<b>Tooling:</b> _____	<b>Date:</b> _____	<b>Run</b>	<b>Start</b>	<b>*NR1*</b>
	<b>QC:</b> _____	<b>Date:</b> _____	<b>SPC (Y/N):</b> _____	<b>Date:</b> _____	<b>Stop</b>		<b>*NR2*</b>

<b>Sequence ID/ Work Center ID</b>	<b>Operation Description</b>	<b>Set Up/ Run Hours</b>	<b>Tool ID</b>	<b>Tool #</b>	<b>Plan Code</b>	<b>Accept Qty</b>	<b>Reject Qty</b>	<b>Reject Number</b>	<b>Insp. Stamp</b>
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145

**\*145\***

Crosstubes

**Memo**

0.00

*PJH* - 12-3-27

Crosstubes

GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150

**\*150\***

HandFXtube

Hand Finishing Crosstubes

**Memo**

0.00

*PJH* - 12-3-27

160

**\*160\***

QC

Quality Control

**Memo**

0.00

0.00

*DP* - 12-3-27

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
		S-E-S						

NOTE: Date & initial all entries

**Work Order ID 80850**

March-01-12 1:50:14 PM

**\*80850\***

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**Item ID:** D412-664-203TRN

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Setup Start

**\*NS1\***

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Stop

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**Start Date:** 01/03/2012 **Start Qty:** 1.00 **\*1\***

**Cust Item ID:**

**Required Date:** 15/03/2012 **Req'd Qty:** 1.00 **\*1\***

**Customer:**

**Reference:**

<b>Approvals:</b>	<b>Process Plan:</b> _____	<b>Date:</b> _____	<b>Tooling:</b> _____	<b>Date:</b> _____	<b>Run</b>	<b>Start</b>	<b>*NR1*</b>
	<b>QC:</b> _____	<b>Date:</b> _____	<b>SPC (Y/N):</b> _____	<b>Date:</b> _____	<b>Stop</b>		<b>*NR2*</b>

<b>Sequence ID/ Work Center ID</b>	<b>Operation Description</b>	<b>Set Up/ Run Hours</b>	<b>Tool ID</b>	<b>Tool #</b>	<b>Plan Code</b>	<b>Accept Qty</b>	<b>Reject Qty</b>	<b>Reject Number</b>	<b>Insp. Stamp</b>
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170	Packaging	0.00							
<b>*170*</b>	Memo	0.00							
Packaging	Identify and stock in kanban rack Location: <u>i6</u>								

180	QC21- Final Inspection - Work Order Release	0.00							
<b>*180*</b>	Memo	0.00							
QC	Quality Control								

NO 12-3-27

MLJ 12/03/28

MLJ 12/03/28

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Picklist Print

March-01-12 1:50:18 PM

Page 1

Work Order ID: 80850

\*80850\*

Parent Item: D412-664-203TRN

\*D412-664-203TRN\*

Parent Item Name: Crosstube Turning Detail

Start Date: 01/03/2012

Required Date: 15/03/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:eec  
IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6009-129		Manufactured	No			120	Each	33.0000	1	1			**

\*D6009-129\*

Crosstube Material

Location	Loc Oty	Loc Code
LG 69801	33 33	

1 9002 12/03/2012

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	80850
Description: Crosstube Assembly (412 High Aft)	Part Number:	D412-664-243
Inspection Dwg: D412-664-243 Rev: E		Page 1 of 1

### FIRST ARTICLE INSPECTION CHECKLIST

First Article     Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.684	+0.005/-0.000	2.686	✓	Vern	CNC-08
	2.748	+0.005/-0.000	2.750	✓		
	2.884	+0.005/-0.000	2.886	✓		
	3.019	+0.005/-0.000	3.021	✓		
	3.163	+0.005/-0.000	3.167	✓		
	3.308	+0.005/-0.000	3.310	✓		
	3.429	+0.005/-0.000	3.430	✓		
	2.990	+0.005/-0.000	2.994	✓		
	2.618	+0.005/-0.000	2.623	✓		
	0.200	+/-0.010	.200	—	Vern	CNC-08
	R0.063	+/-0.010	.063	✓	RG	
	R0.500	+/-0.010	.500	✓		
	4.971	+/-0.030	4.971	✓	Vern	CNC-08
SIDE B	2.684	+0.005/-0.000			Vern	CNC-08
	2.748	+0.005/-0.000				
	2.884	+0.005/-0.000				
	3.019	+0.005/-0.000				
	3.163	+0.005/-0.000				
	3.308	+0.005/-0.000	3.309	—		
	3.429	+0.005/-0.000	3.432	✓		
	2.990	+0.005/-0.000				
	2.618	+0.005/-0.000				
	0.200	+/-0.010	.200	✓	Vern	CNC-08
	R0.063	+/-0.010	.063	✓	RG	
	R0.500	+/-0.010				
	4.971	+/-0.030			Vern	CNC-08
	124.100	+/-0.020	124.100	✓		

Measured by:	MML	Audited by:	JP	Prototype Approval:	N/A
Date:	12/03/22	Date:	12-3-26	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.06.16	New Issue (P/O D412-664-203)	KJ/JLM	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	07.05.08	Tolerance updated for dimension 4.971	KJ/JLM	
D	10.02.02	Dimension 124.100 was 124.09	KJ	JP M

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action      Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD

Work Order:

80850

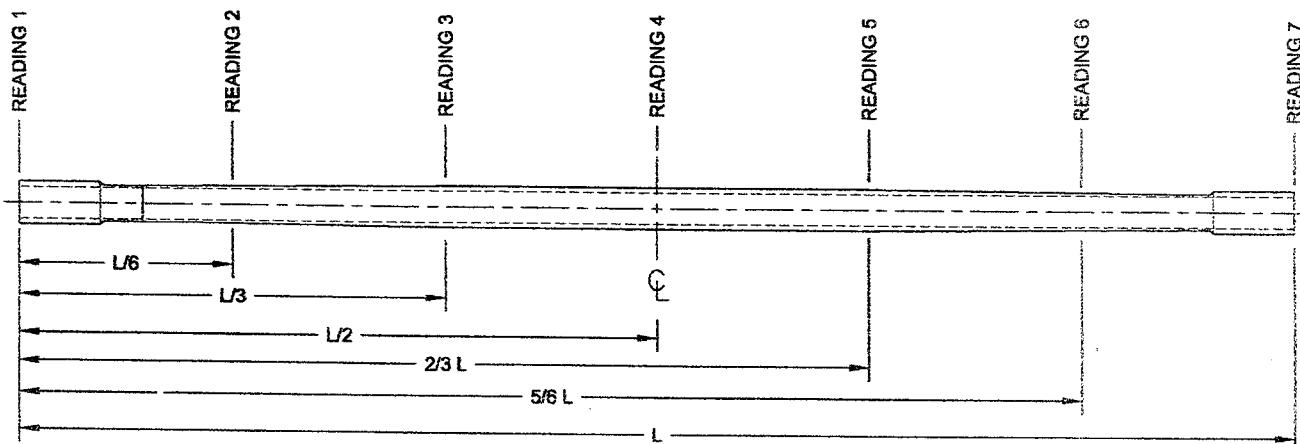
Description:

Part Number:

0412-664-203 TRN

Inspection Dwg:

Page 1 of 1

WALL THICKNESS MEASUREMENT

	WALL THICKNESS MEASUREMENT (IN)				DEVIATION (max-min)	TOLERANCE
	Q1	Q2	Q3	Q4		
READING 1 L= 0"						
READING 2 L= 19"	.295	.291	.304	.310		
READING 3 L= 39"	.473	.456	.456	.474		
READING 4 L=						0.030"
READING 5 L= 19"	.306	.280	.289	.317		
READING 6 L= 39"	.494	.444	.430	.483		
READING 7 L=						

Item	Qty	Part Number	Description
1	X	D412-664-243	CROSSTUBE ASSEMBLY (412 HIGH AFT)
2	1	D6009-129	CROSSTUBE
3	2	D3595-063-570	RUBBER CUSHION
4	1	D2896-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
6	2	D2856-600-1009	ABRASION STRIP
7	4	MS21920-28	CLAMP
8	2	MS21920-30	CLAMP (OR MS21920-32)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6009-129  
FINISHED LENGTH = 124.100±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 47.0 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

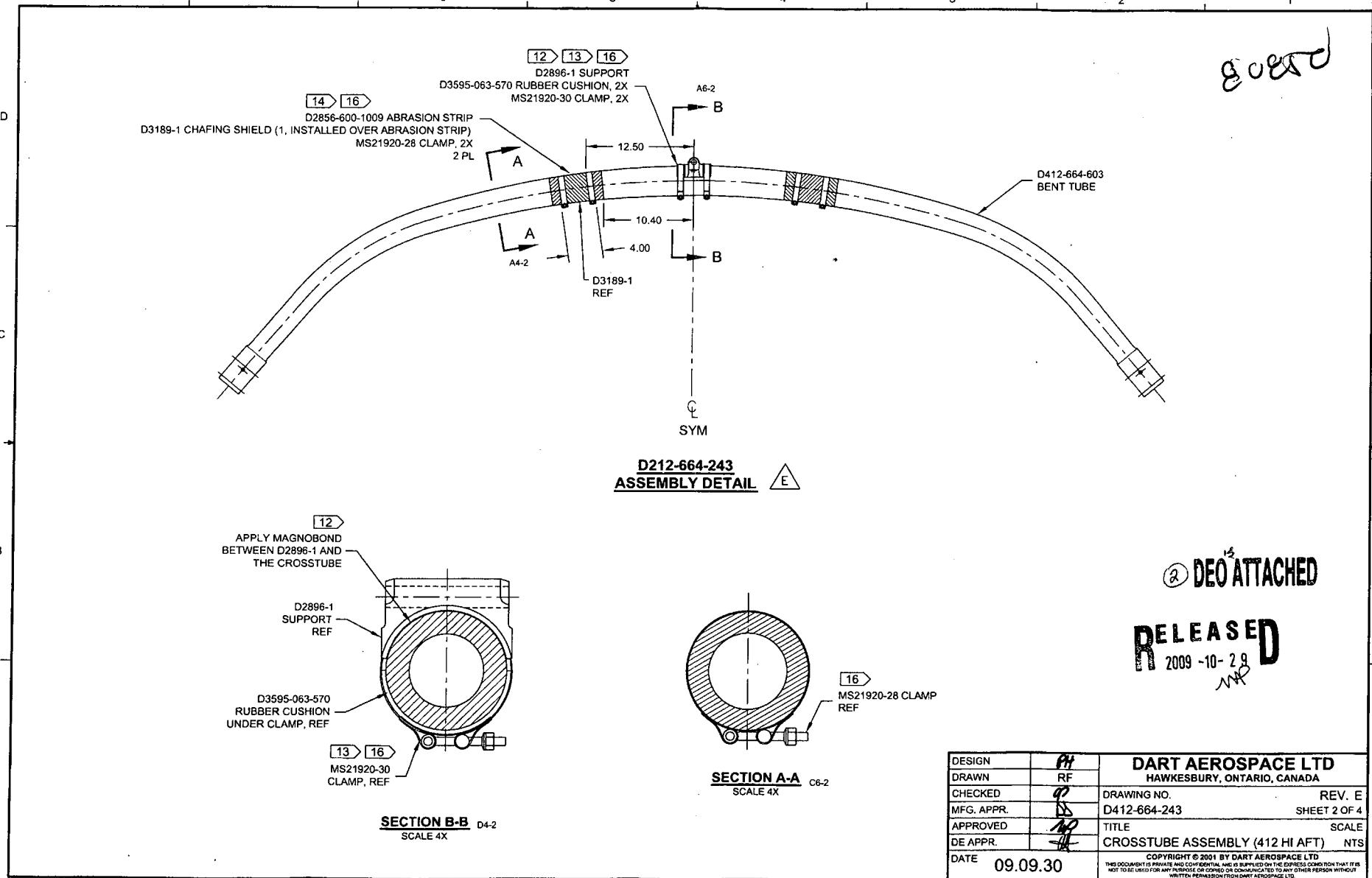
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WITHOUT NOTICE  
WORK ORDER  
NO. 80850 MLC

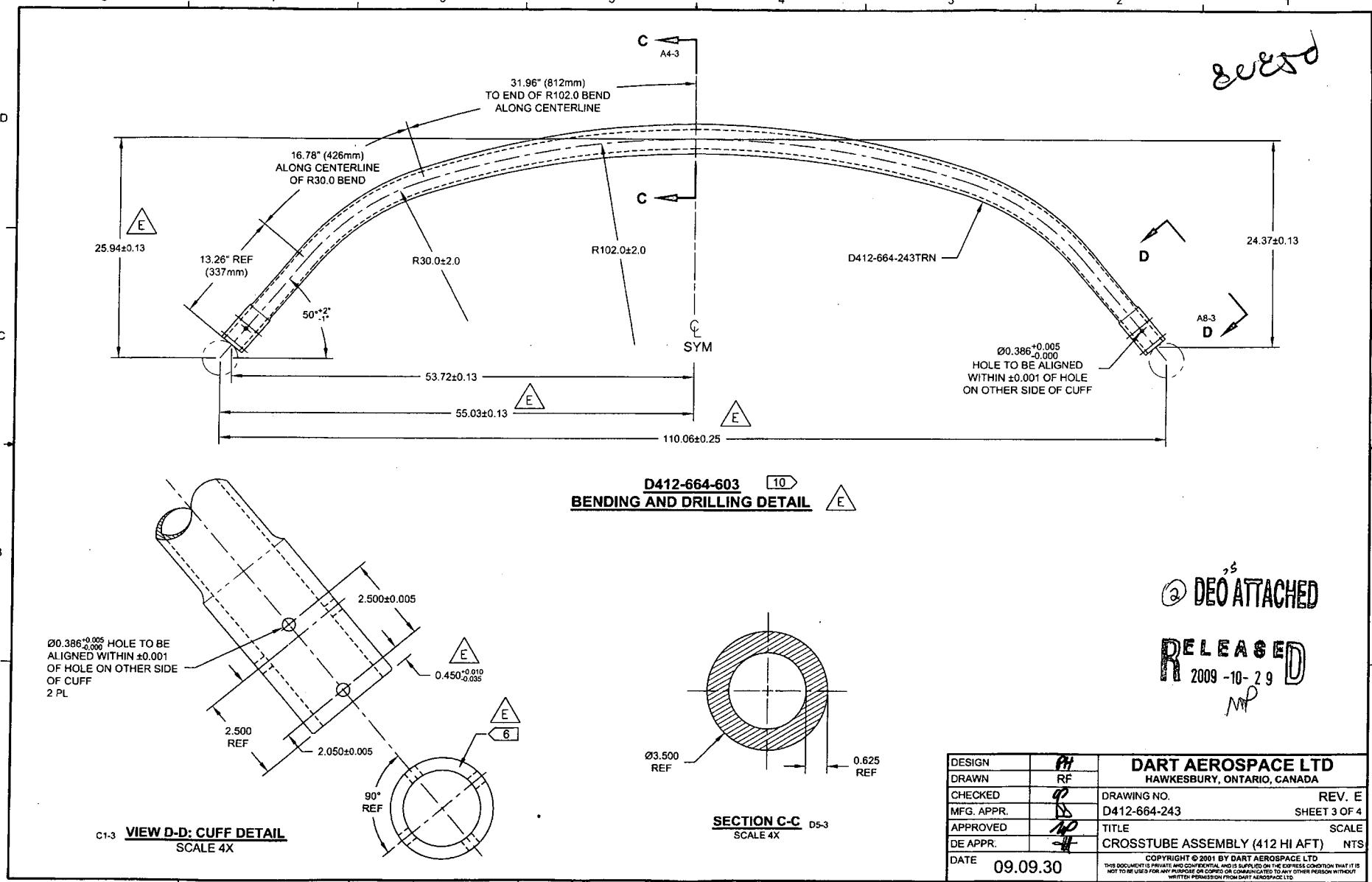
12/03/21

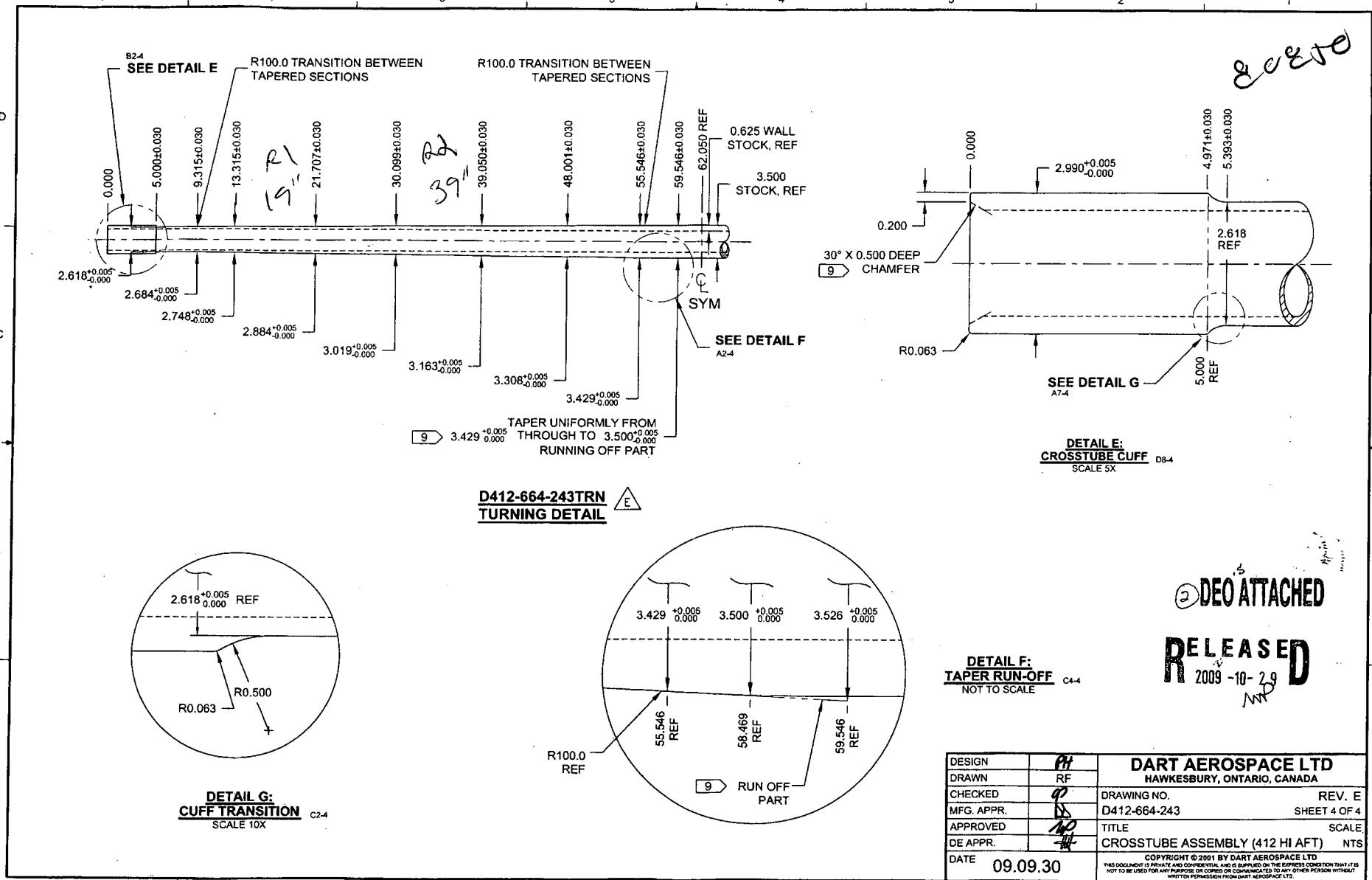
② DEO ATTACHED

RELEASED  
2009-10-29  
JWD

E	REFORMAT/REVISE GENERAL NOTES; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); ADD TOLERANCE (ZN B6-3, C4-3, C8-3 & C5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.09.30
D	REMOVE D2732-058, CHANGE TO D3595-063-570	PH	07.03.09
C	REMOVE D2856-600-1087, ADD D2732-058 & MAGNOBOND 6398, MS21920-32 WAS MS21920-30	MB	06.10.27
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	01.10.17
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PP	DRAWING NO.	REV. E
MFG. APPR.	DS	D412-664-243	SHEET 1 OF 4
APPROVED	MP	TITLE	SCALE
DE APPR.	JK	CROSSTUBE ASSEMBLY (412 HI AFT) NTS	
DATE	09.09.30	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL. IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	







DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	SP	DRAWING NO.
MFG. APPR.	SP	D412-664-243
APPROVED	SP	REV. E
DE APPR.	SP	SHEET 4 OF 4
DATE	09.09.30	TITLE
		CROSSTUBE ASSEMBLY (412 HI AFT) NTS

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WRITTEN PERMISSION FROM DART AEROSPACE LTD

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASSEMBLY (412 HI AFT)	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-1	SHEET NO. SHEET 1 OF 2	SCALE NTS
DRAWN	CHECKED <i>MP</i>	MFG. APPR. <i>E</i>	APPROVED <i>MP</i>	DE APPR. <i>MP</i>		
DATE 11.03.31	DATE 11/03/31	DATE 11.03.31	DATE 11/03/31	DATE 11.03.31	DATE 11-03-31	

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

*see rev*

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty -243	Part Number	Description
6	0	D2856-600-1009	ABRASION STRIP

WAS:

6	2	D2856-600-1009	ABRASION STRIP
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NOTES 2 AND 14, SHEET 1 ARE AMENDED AS FOLLOWS:

IS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA)  
PAINT OUTSIDE PER DART QSI 005 4.2  
AFTER PAINTING, APPLY CLEAR COAT ON HATCHED AREA
- 14) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

WAS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.

*RELEASED  
2011-04-07  
MP*

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASSEMBLY (412 HI AFT)	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-1	SHEET NO. SHEET 2 OF 2	SCALE NTS
DRAWN DATE 11.03.31	CHECKED DATE 11.03.31	MFG. APPR. DATE 11.03.31	APPROVED DATE 11.03.31	DE APPR. DATE 11.03.31		
						80850

IS:

D3189-1 CHAFING SHIELD (1, INSTALLED OVER PROSEAL 890)  
MS21920-28 CLAMP, 2X  
2 PL

D412-664-603  
BENT TUBE

2.00  
1.00

16 14

WAS:

14 16

D2856-600-1009 ABRASION STRIP  
D3189-1 CHAFING SHIELD (1, INSTALLED OVER ABRASION STRIP)  
MS21920-28 CLAMP, 2X  
2 PL

D3189-1  
REF

D412-664-243  
ASSEMBLY DETAIL

RELEASED  
2011-04-07  
MP

2  
MASK AREA PRIOR TO PAINTING AND  
APPLY CLEAR COAT AFTER PAINTING

2.00

C  
SYM

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DRAWING NO. D412-664-243	TITLE CROSSTUBE ASS'Y (412 HI AFT)	REV. E	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D412-664-243-E-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>QP</i>	CHECKED <i>AS</i>	MFG. APPR. <i>RE</i>	APPROVED <i>MP</i>	DE APPR. <i>TH</i>			
DATE 11.09.07	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	

**PURPOSE:**

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

*80850*

**CHANGE:**

IS:

Item	Qty	Part Number	Description
	-243		
9	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

**WAS:**

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
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NOTE 12 & 16, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) INSTALL D2896-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

**WAS:**

- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

*RELEASED*  
2011-09-29  
*MP*

